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ABSTRACT

A relationship exists between high birth rates and the lowered status of women in developing nations, resulting from their country's economic development. Research was based on data from various sources on 34 developed nations and 92 developing nations throughout the world. Variables included income inequality, foreign trade structure and investment, women's share of tertiary education and the labor force, infant mortality rate, and family planning program efforts. Findings indicate that economic structures produced by foreign investment and dependency generate inadequate economic and social resources, especially for women. Specifically, with the introduction of new industries and investment from developed countries, women who previously produced similar goods in cottage industries lose their market and are unincorporated into the industrial labor force. Even though women tend to be primary agricultural producers, new technology grants access to cash crops and financial credit to men only. Thus, women can only raise their status by childbearing since the social and economic value of children remains high. The incorporation of women into development is necessary to reduce fertility rates; without such, family planning programs will continue to have limited effect. (KC)

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TOWARD A NEW MODEL OF FERTILITY: THE EFFECTS OF THE WORLD ECONOMIC SYSTEM AND THE STATUS OF WOMEN ON FERTILITY BEHAVIOR*

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TOWARD A NEW MODEL OF FERTILITY: THE EFFECTS OF THE WORLD ECONOMIC SYSTEM AND THE STATUS OF WOMEN ON FERTILITY BEHAVIOR

Abstract

This paper proposes that the influence of economic development on the status of women and fertility behavior can best be understood within the context of the world economic system. Foreign investment and trade dependency are hypothesized to lower the economic status of women. In turn, efforts to reduce fertility may be stymied by the lowered status of women and economic disdevelopment generated by investment and dependency. Cross-sectional regression analyses on a sample of 105 nation-states indicate that foreign investment and dependency have negative effects on women's economic status. Net of the level of development and the educational and economic status of women, investment and dependency through the effects of income inequality and infant mortality also operate to raise fertility behavior in 1975. Family planning programs are likely to be less than effective if the influence of the world economic system and the declining economic status of women on fertility are not taken into consideration.

TOWARD A NEW MODEL OF FERTILITY: THE EFFECTS OF THE WORLD ECONOMIC SYSTEM AND THE STATUS OF WOMEN ON FERTILITY BEHAVIOR

In examining the linkages between the world economic system and other socio-economic phenomena at the nation-state level, researchers have for the most part neglected the status of women and fertility behavior. First, researchers of women in development have documented that the status of women during development frequently has declined and that women have not gained access to the new economic resources generated by development (Boserup, 1970; Tinker, 1976). Yet research on the processes of the world system has rarely considered the status of women. Similarly, research on women in development has rarely incorporated world system characteristics into analyses on the declining status of women in development. Second, the influence of the world economic system on fertility behavior has previously been examined only by Hout (1980, 1981) and only for Latin America. Other researchers have considered fertility to be an individual nation-state problem and have not included world-system indicators into their analyses (see for example, Caldwell, 1976).

I propose in this paper that the declining status of women is a significant factor in the determination of the level of fertility in developing countries. As noted in other research (Ward, forthcoming), the economic status of women (as measured by women's access to the labor force and economic sectors) has been lowered by foreign investment and trade dependency in the context of the world economic system. This

process is illustrated in a number of developing countries. With the introduction of new industries and investment from developed countries, women who previously produced similar goods in cottage industries have lost their markets and have been unincorporated into the industrial labor force. Likewise, the introduction of agricultural technology frequently has meant that only men have acquired access to new technology, cash crops, and sources of financial credit, even though women have been the primary agricultural producers (Boserup, 1970; Tinker, 1976). Finally, women traders have been relegated to local trade routes, while men have controlled national and international trade relations (Mintz, 1971). Hence, under the processes of the world economic system, women in developing countries generally have remained within the domestic sphere or in household forms of production.

Hypotheses. I hypothesize women's lowered status has impeded the anticipated decline in fertility expected to accompany development. First, decline (compared to the situation of developed nations) has not occurred precisely because women in developing nations, with reduced leverage over their environment as a result of lowered access to resources, can raise their status only through childbearing (Dixon, 1975; Newland, 1976). Second, the social and economic value of children remains high (Espenshade, 1977; Hout, 1980), a factor that, combined with the declining status of women, results in the maintenance of high levels of fertility in developing countries. Third, the world-system has positive effects on fertility through the creation of conditions conducive to infant mortality and income inequality--factors that operate to raise fertility (Rubinson, 1976; Bornschier et al., 1978; Mauldin and Berelson, 1978; Tsui and Bogue, 1978).

This paper, then, will briefly examine how the influence of the world economic system and status of women affect fertility behavior, specifically in developing countries. In doing so, the specific effects of the world economic system and status of women on fertility behavior will be examined empirically for the first time.

DETERMINANTS OF FERTILITY

World-System

A few researchers have suggested that economic interrelationships among nation-states are a major factor in the failure of economic development to generate a fertility decline (Tilly, 1978; Repetto, 1979; Hout, 1980). In first arguing that "the high rates of population growth in today's Third World countries will turn out to be less consequences of their own peculiar internal organization than effects of their economic relationships with the rich countries of the West," Tilly (1978:32) suggests the examination of the relationship between trade dependency and fertility in the developing nations.

Hout (1980) has studied this relationship specifically for Latin America. He proposed that a fertility decline has been impeded by the trade dependency of developing countries on developed countries. An intervening mechanism in this case is the social and economic value of children which remains high under the influence of dependency relations. The overall relationship between development and fertility is curvilinear, since development does not affect fertility rates unless it is accompanied by a decrease in dependency relations. Hout's research is problematic, however, since no measure of the value of children and the relative status of women were included in his analysis.

Another major factor within the world-system affecting fertility is the structure of economic inequality as represented by income inequality. Researchers have found a stronger positive relationship between income inequality and fertility than between fertility and the level of economic development (Bhattacharyya, 1975; Simon, 1978; Repetto, 1979). This stronger relationship, manifested at international and nation-state levels, functions as follows:

> the world fertility rate is affected by the international distribution of income in the same way that national fertility is affected by income distributions within countries (Repetto, 1979:156).

Therefore, dependency relationships and pursuant income inequality appear to be important direct and indirect determinants of fertility, as well as variables that might account for the low relationship between economic development and fertility in developing countries. Another set of variables that must be considered, however, is the status of women.

Status of Women and Fertility

The role of the economic status of women in the determination of fertility has received increased attention in recent years (Chaney, 1973; Dixon, 1975; Germain, 1975; United Nations, 1975; and Westoff, 1978). Most researchers have examined the relationship between women's labor force participation and fertility without incorporating the larger economic context. (For summaries, see Kupinsky, 1977a; Standing, 1978.)

A basic assumption of this paper is that the status of women and the number of children constitute two possible resources for women's leverage over their environment (Newland, 1976). Women's status is defined here as

women's access to educational and economic resources relative to men's. Therefore, a major determinant of fertility rests in the structure of opportunities for women, i.e., whether or not women have access to the new educational and economic resources generated by development. In other words, fertility is conditioned by the economic and social structure in which women reside (Davis and Blake, 1956; Blumberg, 1978).[1] The relationship, however, between fertility and the status of women may differ between developing and developed nations.

Within developed nations, there has been a gradual decline in fertility rates (Glass, 1970; Blake, 1974; Stolte-Heiskanen, 1977). Most researchers attribute this decline to later age at marriage, lower marital fertility rates, expanding educational and occupational opportunities for women, and increasing availability of contraception (Teitelbaum, 1975; Westoff, 1978). Other research has examined the negative influence of equalitarian gender roles and the incompatibility between motherhood and work roles on fertility (Rainwater, 1965; Stycos and Weller, 1967; Scanzone and Murray, 1972; Dixon, 1975; Hass, 1976; Huber, 1981). In the long run, as women in developed nations continue to receive higher levels of education and enter the labor force, fertility in developed nations should decline and perhaps level out at replacement levels (Standing, 1978; Huber, 1981).

Women in Developing Nations and Fertility

The relationship between the status of women and fertility found in developing nations differs from that found in developed nations. Negative relationships between education, labor force participation, and fertility become negligible or even positive in developing countries (Kupinsky, 1977b; Standing, 1978).

Education. Within developing nations, education frequently has a minimal influence on fertility. First, women have unequal educational opportunities in comparison to men and are unable to acquire the knowledge or motivation to limit their families. Second, as noted earlier, education in developing nations does not lead to the type of labor force resources that depress fertility (Dixon, 1975). Thus, education has a reduced negative influence on fertility; however, some research from Asia indicates that the negative effects of education on fertility can be more important than the negative effects of labor force participation (Hull, 1977; Chaudhury, 1979).

Employment. In this area it is clear that women's relative economic contribution is a major intervening factor between economic development and fertility; women's labor force participation per se has only a negligible effect on fertility (Kasarda, 1971; Kupinsky, 1977b; Ware, 1977; Standing, 1978). What is important, then, is the nature of work that women engage in or have access to in the context of their economies, since the level of economic development is a poor proxy for the economic status of women (Kasarda, 1971; Dixon, 1978).

The major reason for the negligible relationship between women's overall labor force participation and fertility is that, in contrast to women in developed countries, the majority of women in developing countries have no choice between motherhood and economic roles. Both roles are socially and economically necessary (Dixon, 1975; Newland, 1976). Thus, women frequently receive social status only from their childbearing roles, especially if their economic contributions are taken for granted but perceived to be less important than men's work.

Due to these social and economic relationships, women's economic roles are, for the large part, compatible with childbearing duties. Hence, we find that women engaged in rural agricultural cottage industries and other domestic economic activities have higher fertility rates.(Collver and Langlois, 1962; Jaffe and Azumi, 1963; Concepcion, 1975; Ware, 1977; Hass, 1976; Dixon, 1975. 1979; Standing, 1978). In contrast, women engaged in urban industrial production, clerical, and professional occupations have lower fertility. The difference between the groups is not only rural/urban but also the extent to which women have access to the modern sector resources or utilize children for economic subsistence (ICRW, 1980b).

Other research suggests that negative relationships exist among foreign investment, trade dependency, development, and women's economic roles that could affect the relationship between women's economic status and fertility. Researchers have noted that women have lost access to modern economic resources during the process of modernization (Boserup, 1970; Papanek, 1976; Tinker, 1976). Further, Ward (forthcoming) found that the effects of foreign investment and trade dependency lowered women's share of the labor force and, in particular, women's share of the agricultural and industrial sectors. Additionally, many women have remained within informal labor markets (unpaid subsistence labor) in developing countries and have been unable to achieve mobility out of these markets into paid employment (Chaney and Smink, 1980). Hence, the effects of the world economic system might operate indirectly on fertility through women's lowered access to economic resources.

If women are relegated to the informal sector or remain in agriculture, as is the case in many developing countries, then fertility is less

likely to decline, since these women will continue to carry out socially prescribed roles where work and motherhood are expected. Nor will these women be exposed to new ideas, values, and information about family planning. Further, children will continue to be valued resources, because of cash flows from children to parents or of the importance of child labor for family income (Caldwell, 1976; ICRW, 1980b). Because of these factors, women may not have the knowledge, status, or motivation to limit their fertility (Coale, 1973).

Consequently, if the effects of the world economic system through investment and dependency have been to restrict women's economic opportunities, then we should observe pressures that obstruct fertility reduction, phenomena not adequately represented by the usual indicators of economic development. We also should find that the structure of economic gender inequality on the status of women has an independent influence on fertility.

Family Planning

When economic development did not bring about the anticipated decline in fertility of developing countries, development planners and demographers began to examine another option: technological solutions in the form of family planning programs. In contrast to the motivational approach of increasing economic development (Blake and Das Guptas, 1978), proponents argued that increased access to family planning programs might help alleviate the problem of population growth and bring about economic development (Todaro, 1977; Tsui and Bogue, 1978; Mauldin and Berelson, 1976).[2]

Aggregate empirical analyses show that family planning program efforts have an independent negative influence on fertility (Mauldin and Berelson, 1978; Tsui and Bogue, 1978), net of the negative effects of development and the positive effects of infant mortality on fertility. However, Dixon (1978) has argued that these analyses are misspecified because of the omission of status of women variables that can explain a substantial and independent proportion of fertility behavior. This argument is important in light of the proposed linkages between the decline in the status of women, the pursuant pressures toward fertility, and Coale's (1973) three determinants of fertility limitation.

Coale (1973) proposes that there are three preconditions for a fertility decline. First, the decision to limit fertility must be within the realm of conscious choice; that is, parents must find family limitation a socially acceptable practice. Second, family limitation must be seen as socially and economically advantageous. Finally, contraceptive knowledge and services must be available.

For women in developing countries, these conditions may be unmet. As Elu de Lenero (1980) writes:

> all its history making women believe that their reason for existence is to have lots of children--and women believe it. Maybe the problem of population growth that now confronts the world can in part be attributed to having marginalized women from a more active social participation, and having confined them to a reproductive role (1980:64).

Women, as a result of patriarchal definition of roles and lowered access to alternative economic resources, find that fertility limitation is not

within the realm of conscious choice (Sadik, 1975; Tangri, 1976; Dixon, 1975; Germain, 1976; Hass, 1976). Furthermore, power differentials within the family can lead to male disapproval of women's control over their fertility. Also, family limitation can appear to be economically disadvantageous: high levels of infant mortality, increasing burdens on women's subsistence activities, and relegation of women to the informal subsistence sector can mean that children are viewed as major economic assets (Ware, 1977; ICRW, 1980b). For these reasons, family planning services, even if available, frequently are underutilized.

A final linkage between the world-system, family planning, and fertility has also been noted. While the world-system through foreign aid/investment has contributed to the decline of the status of women and, hence, efforts to bring about fertility decline have been impeded, foreign aid/investment packages have been granted frequently only if they included funds for family planning efforts (Hass, 1976). Consequently, the influence of family planning programs may be hindered by the deleterious effects that accompany foreign investment or trade dependency (Hout, 1981).

THE WORLD-SYSTEM, THE STATUS OF WOMEN AND FERTILITY: SOME LINKAGES

In light of past research, I suggest that previous theoretical and empirical analyses of fertility are incomplete: this problem area should be examined in the context of the world-system and the relative status of women. If these international and internal factors minimize the utility of family planning programs, then such technological solutions are likely to be ineffective.

If attention is paid to the possible interventions in the exploitative international relationships that impede development, and in particular affect

the status of women, then family planning programs will be more likely to succeed. As Hout (1980) notes, economic development has only a minor influence on fertility unless accompanied by a change in dependency relations. Likewise, I argue that fertility will be less affected by economic development and family planning programs unless the marginalization of women during development and the high value of children under such conditions are taken into consideration. The incorporation of women into development efforts therefore is a necessary component in the efforts to bring about a decline in fertility.

Three sets of relationships deserve further exploration: (1) the influence of the world-system and status of women on fertility; (2) the relative influence of social setting variables on fertility net of the previous factors; and (3) the relative influence of family planning program efforts on fertility net of the world-system and status of women. In the following analyses, these relationships will be examined more specifically:

(1) The status of women and the structure of inequality generated by investment and dependency should have the following influence on fertility:

(1a) Foreign investment and trade dependency will have a direct positive influence on fertility and an indirect positive influence through heightened income inequality and the lowered status of women.

(1b) An increase in the tertiary education share of women should lower fertility.

(1c) An increase in women's share of the labor force should have only a small negative effect on fertility.

(2) A social setting or health-related factor, i.e., infant mortality, should be related to the presence of foreign investment and trade dependency and will be an intervening mechanism (with the status of women) between the world-system and fertility.

(3) The relative influence of family planning programs on fertility should decline if we incorporate the world-system and the status of women into the model.

DATA AND METHODS

Data

Out of the 180 nation-states in the world, the basic sample for this research consists of 126 nation-states or 34 developed nations and 92 developing nations from around the world (Paxton, 1980). This group of countries includes state-controlled economies, but excludes nation-states that have populations less than 250,000. Additional sample limitations exist for countries with populations less than one million for which some investment and dependency indicators are unavailable. Thus, the maximum number of cases for the world-system variables is 115.

Dependent variable. The dependent variable, fertility, is measured in 1975. This dependent and other independent variables are coded from a variety of statistical yearbooks. Fertility is defined as the total fertility rate (TFR). This measure represents the average completed family size, or "the number of births 1000 women would have if they experienced a given set of age-specific birth rates throughout their reproductive span" (Shyrock et al., 1976:314) and is available from Tsui and Bogue (1978).

Independent variables. Indicators of the world-system, international and intervening components and income inequality are coded from the Zurich

Multinational Corporations Project (Ballmer-Cao et al., 1979), the ILO (1977) and UNESCO (1972, 1976) where specified. First, Kilowatt Hours per Capita (KWHC) in logged form represents a measure of overall economic development.

Second, investment and dependency variables include indicators of commodity concentration, foreign trade structure, foreign investment (total and by sector). The commodity concentration measure (CMCON) is the value of the most important export commodity per the value of foreign trade. Foreign trade structure (TRSTR) is measured by the composition of foreign trade in regard to the degree of processing of exports and imports. Thus, the first measure represents the dependency of a nation-state on a certain commodity; the latter measure represents the nation-state's export/import balance of raw materials and processed goods. The foreign investment variable (FDI) is constructed by dividing the stock of foreign private investments by the square root of Kilowatt hours multiplied by population. Specific sectoral foreign investment indicators (MNCAG, MNCEX, MNCM) are constructed by dividing the stock of the sector investment in agriculture, extraction, or manufacturing by the square root of Kilowatt hours multiplied by population (Ballmer-Cao et al., 1979). A consequence of world-system relationships, income inequality, is measured by Gini scores (GINI).

Third, the status of women variables, women's share of tertiary education and women's share of the labor force in 1970, are utilized in analysis; the infant mortality rate and the family planning program effort are the other intervening variables. Women's share of tertiary education (FEM ED) is female enrollments divided by total enrollments at the tertiary level (UNESCO, 1972, 1976). Women's share of the labor force (PWLF) is the adult female labor force divided by the adult labor force (ILO, 1977). A

social setting or health variable used in the analysis is the infant mortality rate (IMR) in 1968 (Tsui and Bogue, 1978). Finally, family planning program effort scores (FAMPLAN) are available only for developing countries and only for 1972 (Mauldin and Berelson, 1978).

Analysis Strategy

Multiple regression analysis is used to examine the effects of the independent variables on fertility behavior. Two basic sets of equations are used: (1) a series of equations containing the development, the status of women, and the separate investment/dependency variables and (2) a series of equations where the infant mortality rate, income inequality, and family planning variables are entered separately into the first equation. These relationships also are depicted in Figure 1.

$$(1)\quad TFR_t = \text{World-System}_{t-2} + KWHC_{t-2} + PWLF_{t-1} + \text{FEM ED} + e$$

$$(2)\quad TFR_t = \text{World-System}_{t-2} + KWHC_{t-2} + PWLF_{t-1} + \text{FEM ED}_{t-1} + [IMR_{t-1} + FAMPLAN_{t-1} + GINI_{t-2}] + e$$

The development, investment/dependency, and income inequality variables are measured circa 1965; the remaining independent variables are measured circa 1970. The justification for these particular time lags follows from the assumption that the proposed relationships take place over time.

FIGURE 1 ABOUT HERE

Data and Correlations

From 1968 to 1975, for a group of 126 nation-states, the level of fertility behavior as measured by the total fertility rate declined from 5069 to 4620 births per 1000 women (see Table 1 for sample means, standard deviations, and correlations). Developed nations continued to have lower levels of fertility, where fertility fell from 3883 to 3353 births per

1000 women. Developing nations remained at higher levels of fertility but exhibited a decline in fertility over this time period from 6256 to 5887 births per 1000 women. During the same time period, however, some nations, for example, Nigeria, actually exhibited a fertility increase.

TABLE 1 ABOUT HERE

These patterns of fertility behavior are predicted to be related to investment/dependency, the status of women, and intervening variables. In general, the relationships between fertility in 1975 and the independent variables are as predicted (see Table 1). The relative influence of the independent variables on fertility behavior are evaluated in the next few sections by first examining the influence of investment/dependency and status of women on fertility and then by examining the relative influence of these factors while controlling for intervening mechanisms.

REGRESSION ANALYSES

The Influence of Investment/Dependency and the Status of Women

The basic model for testing the influence of investment/dependency and the status of women on fertility consists of regressing the total fertility rate in 1975 on an indicator of investment/dependency, women's share of tertiary education and share of the total labor force, and energy usage (countries used in analysis are shown in Appendix 1). Then the effects of other intervening variables are examined by entering these variables into the basic regression model. As a first step in analysis, the possibility of interaction and curvilinear relationships between investment/dependency, development, and fertility, net of the influence of the status of women, is examined in light of the research by Hout (1980). No significant interaction between investment/dependency and

development or a curvilinear relationship between development and fertility are found using increment in R^2 tests.[3] Thus, in remaining analyses, additive effects are reported.

The results of the basic model or regressing fertility on separate investment/dependency indicators, the status of women indicators, and energy usage (development) are found in Table 2 ("a" equations).[4] Overall, commodity concentration, foreign investment, and multinational investment in extraction have positive direct effects on fertility; the greater diversity of the foreign trade structure lowers fertility (as shown in Table 2). Concurrently, the level of development has the strongest negative influence along with the smaller negative effects of women's share of tertiary education and women's share of the labor force. For example, according to the unstandardized regression coefficients in Table 2, a percent change in women's share of the labor force results in a 29 to 49 birth decline per 1000 women.[5]

TABLE 2 ABOUT HERE

Thus, from these analyses using the basic model, the level of economic development has the strongest negative effects on fertility. At the same time, investment/dependency and status of women indicators have smaller but independent effects on fertility net of the level of development. Some investment/dependency indicators work to raise fertility, while the diversity of foreign trade structure has a strong negative effect on fertility. To this we can add the negative influence of investment/dependency on the economic status of women, which in turn affects the relationship between the status of women and fertility by lowering women's share of the labor force and economic sectors. The importance of these findings, however, is that although the effects of

investment/dependency and the educational and economic status of women variables are small, these factors have significant effects net of development. In other words, development incompletely represents the effects of these factors on fertility and is, hence, an unsuitable proxy for the effects of status of women, investment, and dependency on fertility. Thus, analyses that omit these variables are subject to specification error. These regression results, however, need to be evaluated relative to the effects of the major intervening variables, e.g., infant mortality, income inequality, and family planning programs.

Infant Mortality. When the infant mortality rate is included in the basic equations (see "b" equations in Table 2), this variable has a strong positive effect on fertility and the direct effects of investment and dependency variables are reduced.[6] The effects of commodity concentration and MNC (multinational) investment in extraction are small but significant; foreign trade structure maintains its negative influence and foreign investment becomes non-significant. The relative influence of development declines but remains the strongest determinant of fertility followed by the effects of infant mortality. Women's share of the labor force is consistently significant and negative in these equations; women's share of tertiary education becomes non-significant.[7]

Therefore, when infant mortality is introduced into the basic model, the effects of investment and dependency are reduced, suggesting potential indirect effects of these variables through infant mortality on fertility behavior. For example, commodity concentration has a positive correlation with infant mortality ($r = .53$), which suggests a potential relationship between dependency and social settings.[8] The other investment and dependency effects are reduced in size, which might indicate that infant

mortality is an intervening factor that surpasses the direct influence of investment/dependency on fertility. The strength of infant mortality as an intervening variable is further demonstrated by the reduction of the development effects on fertility.

A partial explanation for the reduction of the status of women effects is the multicollinearity between education and infant mortality ($r = -.63$). Further, the level of infant mortality diminishes the potential negative influence of women's economic status on fertility. Consequently, if a high level of infant mortality prevails, the economic status of women is less able to counteract the strong pressures toward higher fertility created by the infant mortality rate. Thus, when the effects of investment/dependency and infant mortality are controlled, the previous negative relationship between the economic status of women and fertility are reduced.

Income Inequality. Another major intervening variable is one of the consequences of investment and dependency: income inequality. The effects of income inequality on fertility relative to the other previously specified independent variables (with the exception of infant mortality) are shown in Table 3 ("a" equations). For example, in these equations, the positive and significant effects from a unit change in income inequality range from 29 to 50 additional births per 1000 women. At the same time, the strong negative effects of development are only slightly lowered across all equations. The effects of foreign investment and MNC investment in extraction are reduced to non-significance. In contrast, the direct effects of dependency measures remain significant where an increase in the diversity of foreign trade structure leads to a decline in fertility; an increase in commodity concentration leads to an increase

in fertility. Thus, the effects of investment on fertility become non-significant when controlling for income inequality while the effects of dependency remain significant. Further, the effects of women's share of the labor force become non-significant in the commodity concentration equation; women's share of education has consistently small and negative effects on fertility.

TABLE 3 ABOUT HERE

Income inequality, therefore, has small positive effects on fertility; the effects of other independent variables are reduced, in particular, the influence of the indicator of women's economic status.[9] This latter effect of income inequality suggests that under conditions of high income inequality and investment/dependency, the previous negative relationships between the economic status of women and fertility are reduced or are negligible. As a result, education has a greater influence on fertility than women's economic status. The reduced investment and dependency effects could be due in part to the causal relationship demonstrated in past research where higher levels of investment/dependency have led to heightened income inequality (Chase-Dunn, 1975; Rubinson, 1976; Bornschier et al., 1978; Bornschier and Ballmer-Cao, 1980). Finally, the strong effects of development on fertility net of income inequality are in contradiction to the findings of Repetto (1979) who argued that income inequality has an equally strong influence on fertility. Thus, the small direct effects of commodity concentration and income inequality only slightly impede the reduction of fertility; other previously negative relationships between the status of women and fertility are lowered.

Family Planning Program Effort. The effects of family planning program effort, while controlling for other independent variables in the basic model (except infant mortality and income inequality), are shown in Table 3 ("b" equations). Since this variable is available only for developing nations, these results should be viewed with caution due to the truncated range of countries in regard to development and investment.[10] Family planning program effort has a strong negative influence on fertility; a unit change in program effort lowers the number of births from a range of 72 to 82 births per 1000 women. The effects of development are reduced but remain the next strongest determinant of fertility compared to family planning, while the effects of investment/dependency on fertility become non-significant. The status of women variables remain significant, including the effects of women's share of tertiary education, although this latter variable becomes less important than women's share of the labor force in the determination of fertility.

Hernandez (1981), however, notes that the effectiveness of this family planning variable is overstated unless other social and development variables that may enhance the effectiveness of family planning programs are controlled in regression analyses. Likewise, I argue that intervening variables such as infant mortality and income inequality need to be controlled in order to assess the relative effectiveness of the family planning variable. In separate analyses not reported here, the family planning effects, however, are lowered if social and economic factors such as income inequality are included in the analyses (Ward, 1982). Further, the combined effects of infant mortality and income inequality on fertility in a more economically diverse group of countries indicate that these two factors provide underlying pressures toward higher fertility. Thus, net of investment and dependency, the strongest

predictors of fertility are development, family planning, infant mortality, and income inequality even though the effects of development on fertility are lowered after controlling for family planning and infant mortality.

Summary of Results

The relationships between investment/dependency, the status of women, development, and intervening variables are as follows: the positive effects of investment and dependency on fertility are transmitted through intervening factors such as infant mortality and income inequality which have positive effects on fertility. In this context, development and the economic status of women depress fertility behavior. After controlling for investment/development and income inequality, however, the development effects are strong but lowered, and some of the previously observed negative relationships between women's share of education, economic resources, and fertility are reduced to non-significance. At the same time, in a restricted sample of developing countries, family planning program efforts have strong negative effects on fertility net of the influence of either income inequality or infant mortality. In contrast, the combined effects of infant mortality and income inequality exert pressures toward higher fertility. Thus, from these results, a final model of fertility should include measures of development, infant mortality, family planning, and income inequality.[11] Other variables that should be included are measures of investment and dependency which are suggested as having indirect effects on fertility and the status of women in education and the labor force variables which have small but significant negative effects on fertility.

DISCUSSION

From these findings, we infer that the influence of investment and dependency on fertility behavior are only small indirect effects through the intervening mechanisms of infant mortality, income inequality, and the economic status of women. At the same time, development has a strong but reduced negative effect on fertility when the intervening variables are controlled; the negative effect of family planning program effort is also indicated. These findings are examined in the context of the previous literature. Then implications of these findings for possible interventions to lower fertility behavior are delineated.

World-System and Inequality

Tilly (1978) argued that the international patterns of fertility are related more to patterns of international economic relationships than to internal nation-state phenomena. Likewise, Repetto (1979) found that income inequality among nations was an equally important or potentially greater determinant of fertility than economic development. Since one consequence of investment and dependency is income inequality, the small indirect effects of investment and dependency through income inequality found in this research only partially support the earlier arguments of Tilly and Repetto, because development has a stronger effect on fertility than does income inequality. Additionally, if in the course of international economic relationships, investment/dependency and income inequality are determinants of infant mortality, then the pattern of small indirect effects of investment and dependency through infant mortality makes sense as well. In other words, developing nations experiencing disdevelopment are less likely to provide good prenatal, early child health, and nutritional care--leading to higher infant mortality rates. In

particular, the relationship between commodity concentration and infant mortality found in this research merits further attention.

The findings of small indirect positive effects of investment and dependency are somewhat different than those results found for Latin America by Hout (1980, 1981), who reported positive and curvilinear effects of trade dependency on fertility. The differences between his and this research may explain the dissimilar findings. First, Hout utilized pooled cross-sections in time series analysis for Latin America in contrast to the cross-sectional and cross-national data used in this research. Second, no measures of income inequality or the status of women were used in his analyses. The differences among these two sets of findings could be a function of analysis techniques, region, or differential model specification.

Hout's arguments about the necessity of dependency to decline before development affects fertility, although unsupported in this research, require some attention due to the positive effects of income inequality and infant mortality on fertility, net of economic development, found in this research. Heightened income inequality and pursuant social consequences such as infant mortality brought about by investment and dependency can lower the negative effects of development on fertility. In essence, an economic-population cycle may evolve: the economic structures produced by investment and dependency generate inadequate economic and social resources for the population, thereby leading to income inequality, lowered relative economic development, and disincentives for the reduction of fertility. With increasing levels of population growth, the distribution of economic and social resources relative to the population is further hindered. Since development is a major determinant of fertility, one point of

intervention within this cycle is changes in the relationships among dependency/investment, economic development, and income inequality that can diminish the effects of development on fertility. For example, if one consequence of investment and dependency is lowered relative rates of economic growth, then changes in investment and dependency may increase the influence of economic development on fertility. Another point of intervention is the economic status of women, which is lowered by investment and dependency relationships.

Status of Women

In the determination of fertility, women's economic status has a small negative influence on fertility net of most factors with the exception of some of the equations that include income inequality. The negative effects of women's share of education diminish when infant mortality is controlled in the regression equations. Furthermore, women's economic status is adversely affected by investment and dependency relations (Ward, forthcoming). Hence, I suggest that some of the small effects of women's economic status on fertility are due to the effects of investment and dependency on the relationship between women's economic status and fertility. First, with increased levels of investment and dependency, women have lowered access to the new economic resources generated, particularly industrial jobs. Second, as noted by other researchers, women's traditional modes of economic livelihood are disrupted by investment and dependency. Due to these two relationships, previous negative relationships between women's work and fertility found in developed countries may be reduced or become negligible as many women in developing countries may have lowered access to the formal labor force and are relegated to the informal sector. As a result, the levels of fertility remain high. Thus,

the limited effects of women's economic status net of investment and dependency suggest a partial explanation for the inconsistent cross-national findings between women's economic status and fertility noted by Kupinsky (1977a) and Standing (1978) where researchers did not control for investment and dependency.

These macro relationships may affect fertility decision-making at a less aggregate level since in Coale's (1973) terms, many women may be unable to consciously choose fertility reduction or may find such reduction economically disadvantageous. Women's power or control over fertility is lowered within the family due to women's lowered access to economic resources; also, the value of children remains high--either as a source of income or social status (Dixon, 1975; Caldwell, 1976; Hass, 1976; Newland, 1976; ICRW, 1980b). Thus, children are a major means for women to generate leverage over their environment; the care of children is easily combined with participation within the informal labor market (Newland, 1976; Youssef, 1979). Therefore, in the context of developing countries, traditional models of fertility behavior are incomplete because as Youssef notes:

> The premise for this particular model [human capital or traditional models of fertility] bears some relevance to conditions characterizing a tiny minority of upper and middle class women whose education gives them access to stimulating, creative, and ego-fulfilling jobs that offer satisfaction and rewarding alternatives to child-bearing. The explanatory variables lose much of

their appeal in interpreting the employment fertility relationship among low-income women (1979:16).

Women's Education. The small or inconsistent effects of women's share of tertiary education indicate that women's access to tertiary education has only a limited negative influence on fertility. This limited influence is congruent with research cited previously which has noted that the negative relationship between education and fertility in developing countries is lowered if educated women are unable to find work commensurate with their education (Dixon, 1975). This relationship is weakened further when sons are educated first and are the family members most likely to find employment; the education and fertility relationship is unlikely to increase because parents are unwilling to invest in their daughters' continued education. As a consequence, women, through lower access to education, will lack exposure to new ideas, values, and education which in turn affect fertility behavior (Dixon, 1975). Finally, given the low level of formal employment opportunities for women in developing countries and low levels of literacy, other social factors, e.g., infant mortality, intervene in the education and fertility relationship.

Family Planning Program Effort. The negative effects of family planning on fertility need to be evaluated in light of dependency, investment, and the status of women as discussed in the preceding sections. First, these negative family planning effects are found for a sample limited to developing countries in contrast to the small but more economically diverse sample used in the infant mortality and income inequality equations. Thus, these effects could be biased upwards since

the overall variation in investment and dependency is limited and the relationships among investment, dependency, and fertility are reduced. Second, as argued previously, income inequality and, in particular, infant mortality provide underlying pressures toward higher fertility. If developing nations rely only on technological solutions or family planning programs, these programs can be undermined by the positive effects of income inequality and infant mortality. Third, these programs could be more effective if women had greater control over fertility behavior due to women's increased access to economic resources (Youssef, 1979).

While family planning programs are essential for the reduction of fertility, the results of this research suggest that these programs should be implemented as part of a diverse strategy for fertility reduction. As Coale (1973) notes, the provision of family planning is only one of three necessary factors to bring about a fertility decline (the other factors are conscious choices over fertility and that the reduction of fertility is socially and economically advantageous). By concentrating solely on family planning programs, other possible interventions that could have more benefits besides fertility reduction are ignored--changes in investment/dependency relationships and the improvement in the economic status of women--all factors that can strengthen development efforts while contributing to lower fertility rates.

In conclusion, the determination of cross-national fertility behavior is very complex. To the previous theoretical and empirical work on the macro structural effects of development, family planning, and infant mortality on fertility, the effects of the world-system, income inequality, and the status of women found in this research merit further investigation.

FOOTNOTES

[1]Davis and Blake (1956) propose that socioeconomic determinants of fertility operate through a set of intermediate mechanisms governing exposure to the risk of fertility, e.g., marriage, contraception, etc. Although specific intermediate mechanisms cannot be directly incorporated in the model, an investigation of the process by which the status of women determines fertility can take place only through a study of these mechanisms. For example, education is assumed to have a direct negative influence on fertility as women gain access to knowledge about contraceptive practices and family limitation, and are consequently more apt to limit their fertility (Dixon, 1975; Standing, 1978). Consequently, education operates through these intermediate mechanisms to limit fertility. Further, numerous researchers have found that women's labor force participation can lead to greater power and status within the family (Rosen and Simmons, 1971; Piepmeier and Adkins, 1973; United Nations, 1974; Dixon, 1975; Sadik, 1975; Tangri, 1976). Thus, working women may have a greater voice in fertility and family decisions.

[2]The relative efficacy of economic development versus family planning programs in the reduction of fertility has been debated at great length (see, for example, the proceedings of the 1974 World Population Conference). While some researchers argue that economic development in developing countries is necessary for the reduction of fertility, and hence that these countries should concentrate their meager resources on development efforts, still other researchers argue that population growth is impeding economic development and therefore family planning programs can enhance development efforts. In this research, I assume that <u>both</u> economic development and the reduction of fertility are necessary in developing countries; however,

if barriers to development are consequences of the existing world economic relationships and these barriers lead to higher levels of population growth, then researchers and public officials should attempt to maximize their use of limited resources by formulating policies that incorporate the most efficient use of development and family planning programs. Otherwise, family planning programs are likely to be less than effective.

[3]These tests are performed by first estimating the following equation:

Fertility = a + b INV/DEP + b KWHC = b FEM SHA LF + b FEM TERT ED + e

Interaction terms are constructed by multiplying an investment/dependency indicator by the kilowatts per capita indicator (INV/DEP * KWHC). The curvilinear relationship between development and fertility is represented by a squared development term ($KWHC^2$). Then these terms are entered into the first equation by separate investment and dependency indicators (Hout, 1980). The increment in R^2 with the addition of these terms is not significant at the $p < .05$ level, and the individual interaction or squared terms also are not significant with the exception of one equation. This equation was not interpretable due to multicollinearity. As will be noted later in the discussion section, the reasons for the non-significant effects of the interaction or curvilinear terms are possibly due to the use of a cross-national versus a regional sample and differential model specification.

[4]A lagged dependent variable is not used due to the high correlation between the total fertility rate in 1968 and 1975 ($r = .96$); thus, the range of variation in fertility in 1975 is examined. Finally, results are reported only for significant investment/dependency equations. For example, multinational investment in agriculture and manufacturing has non-significant effects on fertility behavior.

[5]In other analyses not reported here (Ward, 1982), the effects of women's access to agricultural, industrial, and service sectors all have small but negative effects on fertility.

[6]This particular research strategy is used to examine the separate effects of the three intervening variables and is due to the differential number of cases for which data are available on all three variables.

[7]The other economic status of women indicators noted in footnote 5 become non-significant in their effects on fertility when infant mortality is included in the regression equations.

[8]Separate analyses indicate that the level of infant mortality is related to dependency and investment. Infant mortality in 1968 is regressed on indicators of investment and dependency circa 1965 while controlling for the level of development in 1965. Of the investment and dependency indicators, commodity concentration and MNC investment in extraction have significant and positive effects on the level of infant mortality. The standardized coefficients for the commodity concentration equation are .17 for commodity concentration and -.72 for KWHC; the similar coefficients for the extraction equations are .22 for MNC extraction and -.80 for KWHC. Thus, although the level of energy usage is a stronger determinant of infant mortality, these measures of investment and dependency have a positive influence on infant mortality, suggesting the presence of indirect effects of investment and dependency on fertility through infant mortality.

[9]When income inequality is introduced into the equations, the effects of other economic status of women variables also become non-significant, for example, the effects of women's share of industry which is negatively affected by the level of income inequality (Ward, 1982).

[10]Although the number of cases in the equations that include both income inequality is lower than in other equations, the countries represented in the equations are more diverse in terms of investment and level of development in contrast with the more homogeneous sample of developing countries for which the Mauldin-Berelson family planning program effort variable is available.

[11]If all three variables are included in the equation, the number of cases become prohibitively low.

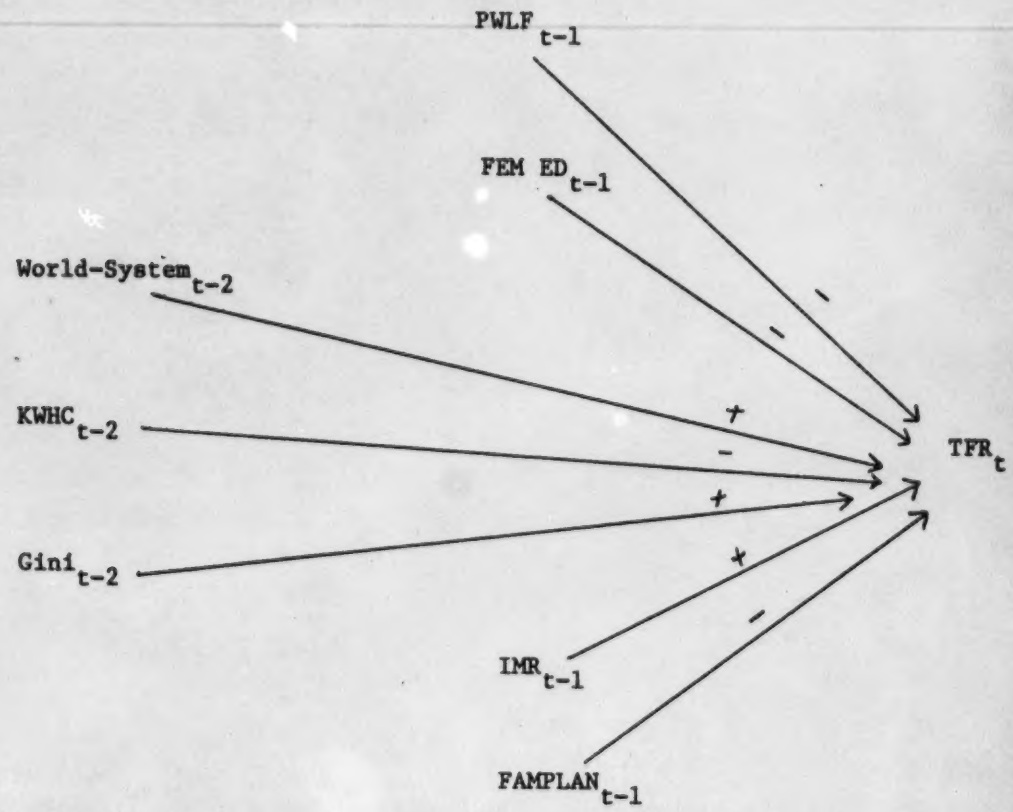

Figure 1. The Effects of the World-System, the Status of Women and Intervening Variables on Fertility.

Table 1. Number of cases, means, standard deviations, and correlations

Variable	TFR	TRSTR	CMCON	FDI	MNCAG	MNCEX	MNCM	PWLF	KWHC	FEM ED	IMR	GINI	FAMPLAN
N	126	104	87	114	114	114	114	126	126	115	114	75	86
$\bar{X}$	4620.17	-.38	43.23	54.97	7.55	24.00	16.40	29.81	5.79	27.96	92.42	44.71	6.42
Sd.	1809.67	.33	22.95	43.28	16.03	35.22	15.50	12.28	1.76	12.62	59.41	10.26	7.93
TFR	1.00												
TRSTR	- .63	1.00											
CMCON	.55	- .64	1.00										
FDI	.20	- .38	.32	1.00									
MNCAG	.20	- .28	.22	.51	1.00								
MNCEX	.28	- .37	.55	.75	.32	1.00							
MNCM	- .15	- .11	- .12	.60	.32	.16	1.00						
PWLF	- .24	.20	- .27	- .22	.04	- .24	.04	1.00					
KWHC	- .78	.50	- .46	- .01	- .19	- .06	.17	- .03	1.00				
FEM ED	- .61	.30	.27	- .17	- .06	- .18	.03	.00	.61	1.00			
IMR	.83	- .51	.53	.10	.11	.29	- .21	- .01	- .82	- .63	1.00		
GINI	.62	- .50	.42	.44	.26	.43	.16	- .28	- .40	- .47	.55	1.00	
FAMPLAN	- .76	.42	- .18	- .02	.08	- .05	.01	- .07	.49	.46	- .63	- .27	1.00

Variable definitions (terms in parentheses are variables names used in regression tables):

- TFR — total fertility rate, 1975
- TRSTR — foreign trade structure (FOR TRA STR)
- CMCON — commodity concentration, 1965 (COM CONC)
- FDI — foreign direct investment, 1967 (FOR DIR INV)
- MNCAG — multinational (MNC) investment in agriculture, 1967
- MNCEX — MNC investment in extraction, 1967 (MNC INV EXT)
- MNCM — MNC investment in manufacturing, 1967
- PWLF — women's share of the labor force, 1970 (FEM SHA FL)
- KWHC — logged kilowatt hours per capita, 1965 (KWHC)
- FEM ED — women's share of tertiary education, 1970 (FEM TERT ED)
- IMR — infant mortality rate, 1968 (INF MORT)
- GINI — income inequality, 1967 (GINI)

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Table 2. The Effects of Investment/Dependency, Women's Share of the Labor Force, and Infant Mortality Rate on Fertility, 1975[a]

Variables	Unstandardised Coefficients							
	a	b	a	b	a	b	a	b
FOR TRA STR[b]	-1173.83** (310.2998)	-905.1698** (282.18)						
COM CONC[b]			14.5162** (4.7230)	8.9082* (4.7989)				
FOR DIR INV[b]					3.4729* (2.0351)	2.1800 (1.8443)		
MNC INV EXT[b]							8.6104** (2.4307)	4.6751* (2.488)
KVNC[b]	-656.2850** (74.750)	-374.8162** (84.7279)	-720.6393** (71.9160)	-526.3778** (92.1892)	-772.8817** (61.8639)	-531.4447** (79.2587)	-773.9915** (58.8981)	-536.8418** (81.2849)
FEM TERT ED[c]	-26.7840** (9.2605)	-15.0264* (8.6695)	-28.0727** (9.4740)	-14.9954 (9.7730)	-22.5369** (8.7122)	-11.7517 (8.1034)	-20.9158** (8.2893)	-12.0237 (7.9322)
FEM SHA LF[c]	-28.7329** (8.0468)	-29.3075** (6.9723)	-42.0475** (7.9822)	-40.7136** (7.4344)	-45.2934** (6.9432)	-42.4704** (6.1860)	-42.1736** (6.6948)	-41.5559** (6.1399)
INF MORT[c]		13.6194** (.0992)		10.4387** (3.0138)		10.9083** (2.4128)		9.4777** (2.5419)
INCPT	9495.478	6446.354	10258.17	8001.749	10977.79	8213.612	10816.23	8525.77
R^2	.7867	.8510	.8101	.8425	.7948	.8468	.8124	.8502
N	95	90	82	78	105	99	105	99
Variables	Standardised Coefficients							
FOR TRA STR	-.2201	-.1670						
COM CONC			.1756	.1059				
FOR DIR INV					.0805	.0500		
MNC INV EXT							.1604	.0845
KVNC	-.6254	-.3526	-.6514	-.4726	-.7327	-.5035	-.7337	-.5342
FEM TERT ED	-.1819	-.0992	-.1781	-.0929	-.1538	-.0792	-.1387	-.0811
FEM SHA LF	-.1827	-.1856	-.2720	-.2668	-.3013	-.2851	-.2806	-.2789
INF MORT		.4284		.3162		.3450		.2997

[a] Variables defined in Table 1, standard errors in parentheses.

[b] Measured circa 1965.

[c] Measured circa 1970.

*$p < .10$.

**$p < .05$.

Table 3. The Effects of Investment/Dependency, Status of Women, Income Inequality, and Family Planning Program Effort on Fertility, 1975[a]

Variables	Unstandardised Coefficients							
	a	b	a	b	a	b	a	b
FOR TRA STR[b]	-963.5159** (348.7609)	-332.8332 (415.2347)						
COM CONC[b]			13.5519** (5.5852)	.6134 (4.3138)				
FOR DIR INV[b]					.7135 (2.6945)	-.7792 (1.9506)		
MNC INV EXT[b]							5.0018 (3.973)	.8948 (2.3086)
GINI[b]	29.9004** (13.2837)		50.4786** (13.9985)		51.0867** (13.7449)		43.2916** (13.6531)	
FAM PLAN[c]		-82.4113** (14.7711)		-72.8267** (14.5749)		-78.3147** (12.1778)		-76.5002** (12.3410)
KVHC[b]	-663.6591** (81.6002)	-345.7808** (98.8119)	-692.8090** (82.1827)	-271.7191** (97.4579)	-736.1681** (80.6229)	-285.9187** (89.9584)	-744.7973** (78.1593)	-321.1786** (93.2116)
FEM TERT ED[c]	-27.2090** (9.9124)	-17.3539* (9.5019)	-23.7583 (10.4796)	-24.1146** (8.6374)	-21.8975** (10.7005)	-20.1654** (7.3943)	-23.1686** (10.5438)	-19.2044** (7.4394)
FEM SHA LF[c]	-16.9280** (10.0888)	-23.5814** (8.1889)	-15.3352 (10.2660)	-23.4078** (7.7664)	-20.0745* (10.1473)	-29.9397** (6.7580)	-21.1519** (9.9850)	-30.9725** (6.6673)
INCPT	7933.573	8645.559	6919.904	8705.058	7805.007	8896.808	8212.956	8990.733
R^2	.8420	.7087	.8540	.6582	.8286	.7132	.8347	.7131
N	61	66	56	57	67	72	67	72
Variables	**Standardised Coefficients**							
FOR TRA STR	-.1992	-.0617						
COM CONC			.1619	.0119				
FOR DIR INV					.0157	-.0297		
MNC INV EXT							.0895	.0301
GINI	.1541		.2459		.2777		.2354	
FAM PLAN		-.5257		-.4789		-.5196		-.5075
KVHC	-.5938	-.3527	-.5877	-.3150	-.6187	-.3300	-.6259	-.3707
FEM TERT ED	-.1726	-.1643	-.1994	-.2746	-.1305	-.2193	-.1380	-.2089
FEM SHA LF	-.0918	-.2351	-.0871	-.2949	-.1122	-.3537	-.1183	-.3659

[a]Variables defined in Table 1, standard errors in parentheses.
[b]Measured circa 1965.
[c]Measured circa 1970.
*$p < .10$.
**$p < .05$.

Appendix 1. Countries Used in Analyses: Fertility Behavior[a]

Country	TRSTR	CMCON	GINI	INFMORT	FAMPLAN
Afghanistan		x		x	x
Albania					
Algeria	x	x		x	x
Angola				x	x
Argentina	x	x	x		x
Australia	x	x	x	x	
Austria	x	x	x	x	
Belgium	x	x		x	
Benin	x	x	x	x	x
Bolivia		x	x	x	x
Brazil	x	x	x	x	x
Bulgaria			x	x	
Burma	x	x	x	x	x
Burundi				x	x
Central African Republic	x			x	x
Cambodia	x	x		x	x
Cameroon	x			x	x
Canada	x		x	x	
Chile	x	x	x	x	x
Colombia	x	x	x	x	x
Costa Rica	x	x	x	x	x
Czechoslovakia	x	x	x	x	
Denmark	x	x	x	x	
Dominican Republic		x		x	x
Ecuador		x	x	x	x
El Salvador	x	x	x	x	x
Ethiopia	x	x		x	x
Egypt	x	x	x	x	x
Finland	x	x	x	x	
France	x	x	x	x	
German Democratic Republic			x	x	
German Federal Republic	x	x	x	x	
Ghana	x	x	x	x	x
Greece	x	x	x	x	
Guatemala	x	x		x	x
Guinea				x	x
Hong Kong	x		x	x	x
Hungary	x	x	x	x	
India	x	x	x	x	x
Indonesia	x	x	x	x	x
Iran	x	x		x	x

Appendix 1 cont.

Country	TRSTR	CMCON	GINI	INFMORT	FAMPLAN
Iraq		x	x	x	x
Ireland	x	x		x	
Israel	x	x			
Italy	x	x	x	x	
Ivory Coast	x	x	x	x	x
Jamaica	x		x	x	x
Japan	x	x	x	x	
Jordan	x	x		x	x
Kenya	x		x	x	x
Laos	x			x	x
Lebanon			x	x	x
Liberia	x	x		x	x
Libya	x	x		x	x
Madagascar	x	x	x	x	x
Malawi	x	x	x	x	x
Malaysia	x		x	x	x
Mali	x			x	x
Mexico	x	x	x	x	x
Morocco	x	x	x	x	x
Mozambique				x	x
Netherlands	x	x	x	x	
Nicaragua	x	x		x	x
Nigeria	x	x	x	x	x
Norway	x	x	x	x	
New Zealand	x	x	x	x	
Pakistan	x	x	x	x	x
Panama	x	x	x	x	x
Paraguay		x		x	x
Peru	x	x	x	x	x
Philippines	x	x	x	x	x
Poland			x	x	
Portugal	x	x		x	
Republic of Korea	x	x	x	x	x
Romania				x	
Rwanda	x	x		x	x
Saudi Arabia		x		x	x
Senegal	x	x	x	x	x
Sierra Leone	x	x	x	x	x
Singapore	x			x	x
Somalia	x	x		x	x
Spain	x	x	x	x	
Sri Lanka	x	x	x	x	x
Sudan	x	x		x	x

Appendix 1 cont.

Country	TRSTR	CMCON	GINI	INFMORT	FAMPLAN
Sweden	x	x	x	x	
Switzerland	x	x	x	x	
Syria	x	x		x	x
Tanzania	x	x	x	x	x
Thailand	x	x	x	x	x
Togo	x	x		x	x
Trinidad-Tobago	x		x	x	x
Tunisia	x	x	x	x	x
Turkey	x	x	x	x	x
Uganda	x			x	x
United Kingdom	x	x	x	x	
Upper Volta	x	x		x	x
Uruguay		x	x		
United States	x	x	x	x	
USSR	x			x	
Venezuela	x	x	x		x
Vietnam	x	x		x	x
Yugoslavia	x	x	x	x	
Zaire	x	x		x	x
Zambia	x	x	x	x	x
Zimbabwe			x		

[a]An "x" indicates that data are available for the variables listed above plus total fertility rate, women's share of the labor force and sectors, kilowatt hours, and foreign and sectoral investment.

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